Appendix D

Planning Level Waters of the U.S. Analysis

APPENDIX D
PLANNING LEVEL WATERS OF THE U.S. ANALYSIS

In the absence of a permit application and Jurisdictional Determination for the Proposed Project, a planning-level Waters of the U.S. network was developed by Atkins scientists in order to facilitate discussion of water resources within the study area in the EIS, as well as potential impacts to water resources as a result of the Proposed Project and its alternatives. The planning-level data were first modeled using Geographic Information Systems (GIS). This dataset was then ground-truthed and refined with data collected in the field.

The planning-level Waters of the U.S. streams were modeled in ArcGIS using the ArcHydro tool on a 10 by 10 foot digital elevation model (DEM), which was derived from high resolution Light Distance and Ranging (LiDAR) data collected for Charleston County and obtained from the SC Department of Natural Resources (SCDNR 2014). Tributary flow paths were estimated using National Hydrography Dataset (NHD) data from the U.S. Geological Survey (USGS 2014), and were then evaluated and revised based on aerial photography and high resolution LiDAR data.

Predicted wetlands were estimated by identifying areas on the DEM within the mean tidal amplitude of Charleston Harbor, at an elevation of 5.5 feet. These areas were identified using elevations from the high resolution LiDAR and tidal information from the NOAA buoy data (NOAA 2014) located at Charleston Harbor (Station CHTS1 – 8665530).

Field verification to determine the accuracy of GIS predicted streams and wetlands was conducted by Atkins staff in June 2014 and January 2016 for features within the Waters of the U.S. Resource Study Area. Any changes to the predicted model were mapped using Trimble Geo XT and Geo XH Differential Global Positioning Systems (GPS) technology with a Global Navigation Satellite System (GNSS), which reports sub-meter accuracy. The GPS data were corrected using GPS Pathfinder office software and exported to shapefile format. The field data were used to verify the presence of the predicted stream and wetland features, to add additional features not predicted, and to adjust boundaries of wetlands, open water, or streams. However, a full delineation was not performed.

In several locations, field verification of features in close proximity to active rail lines required a certified escort, provided by Transportation Systems, Inc., for safety reasons. The escort was certified to supervise access to areas near, but no closer than 25 feet of, active CSX rail lines. Within the CSX related activity portion of the Waters of the U.S. Resource Study Area, there are several active NS rail lines within close proximity to the CSX lines. As a result, the escort was not authorized to provide access, and field verification of stream features in this area could not be completed. In these areas, most notably in the CSX related activities corroder, the presence/absence of predicted stream features was refined using aerial photo interpretation.

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